

Amendments to the Drawings

The attached Replacement Sheet replaces the sheet with Figures 3 and 4. The Replacement Sheet contains an additional reference number for a notch 56 in the fins 16.

REMARKS

Following entry of the above amendments, claims 2-24 will be pending. Of these, claims 16-22 stand withdrawn from consideration. Claim 1 has been cancelled. Claims 2 and 7 have been re-written in independent form, without change in scope. Claim 12 has been re-written in independent form and has been amended to clarify its distinction over the prior art. Claims 3, 6, 16, 17, and 20 have been amended to avoid depending upon cancelled claim 1. Claims 9, 14, 20, and 21 have been amended to make minor changes in claim language, without intended change in scope. Claims 23 and 24 have been added. The drawings have been amended to address the Examiner's objections. The Examiner's objections to and rejections of claims 1-15 are addressed below.

Drawings

The Examiner's objections to the drawings with respect to reference numbers "50" and "52" are addressed by amendments to the specification.

Figure 3 has been amended to identify the notch in the fins of the projectile by adding reference number "56." No new matter has been entered into Figure 3. A Replacement Sheet is attached with this Reply to address the Examiner's objections. Withdrawal of the Examiner's objections to the drawings is respectfully requested.

Specification

The specification has been amended to address the Examiner's objections to the reference numbers in the drawings. Paragraph 0026 has been amended to insert a new reference number "56," which designates a notch. Paragraph 0029 and paragraph 0042 have been amended so that the reference numbers in the specification correspond to the reference numbers in the drawings. Withdrawal of the Examiner's objections to the drawings is respectfully requested.

Claim Objection

Claim 4 stands objected to for reference to "the segments." Claim 3 has been amended to depend upon claim 2, thereby removing the basis for the objection. Withdrawal of the objection is respectfully requested.

Claim Rejection – 35 U.S.C. § 112

Claim 11 stands rejected as indefinite because it is not understood what the term "notch" refers to. The drawings and specification have been amended to clearly identify the notch with reference number "56." It is believed that the term itself is of sufficient clarity so as to avoid indefiniteness. Withdrawal of the rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 102

Claims 2-5, 12, 14 and 15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al., U.S. Patent No. 3,915,091 ("Smith"). Withdrawal of the rejections are respectfully requested for at least the following reasons.

Smith discloses a rocket powered round for launch from a tubular type launcher. A launch cartridge means 54 is detachably coupled to the rocket motor means 20. Col. 3, lines 50-52. The launch propellant charge means 80 is mounted on the peripheral walls 78 of the body member 58 and may contain incremental launch charges 82. Col. 4, lines 7-20. A plurality of spring tab means 92 are coupled to the body member 58 of the launch cartridge means 54. Col. 4, lines 31-37. During launch, the aerodynamic drag exerted on the launch cartridge means 54 together with the release of the engagement spring tabs 92 and the stripper plate 126 cause the launch cartridge means 54 and propellant charge means 80 to detach from the round 10 and fall in front of the launcher. Col 8, lines 2-10. Smith does not disclose propelling charge holder segments that are separable from each other during flight of the projectile.

Claim 2 recites a projectile that includes a body coupled to propelling charge holder segments that are separable during flight of the projectile. Smith does not disclose a propelling charge holder that is separable during flight. Instead, the stripper plate and the spring tabs 92 act to detach the launch cartridge means 54, including the propellant charge means 80, from the round 10 during launch before flight of the projectile. Since Smith does not teach or suggest all of the features of claim 2, claims 2-5 are patentable over Smith.

Claim 12 recites a projectile that includes a projectile body coupled to propelling charge holder segments where the propelling charge holder segments have a curved free shape. An inward radial force is applied to the propelling charge holder segments by the propelling charge increments to combine them and form the propelling charge holder. In Smith, the propelling charge means 80 surrounds the peripheral walls 78 of the launch cartridge means 54. The launch cartridge means 54, including the body member 58, is a single unified piece. The launch propelling charge means 80 does not provide an inward radial force to combine the propelling charge holder segments to form the propelling charge holder. Since Smith does not disclose all of the features of claim 12, claims, 12, 14, and 15 are patentable over Smith.

Dependent claim 14 additionally recites an igniter holder with an annular flange that supplies at least part of the inward radial force to the propelling charge holder segments to combine them to form the propelling charge holder. Smith does not teach or suggest this additional feature. Smith discloses an end cap 86 that is coupled to the aft end 88 of the launch cartridge body member 58 by a threaded engagement. Col. 4, lines 21-23. The end cap 86 does not supply an inward radial force to propelling charge holder segments, but rather the end cap 86 is screwed into the body member 58 of the launch cartridge means 54. The flange on the end cap (the portion of the end cap between reference number 86 and 88) does not supply an inward radial force to the propelling charge holder segments to hold them together. The end cap is attached to

the projectile in a manner that only allows the flange to transmit a longitudinal force along the length of the projectile. Therefore claim 14 is patentable over Smith because the flange does not provide an inward radial force to the propelling charge holder segments.

Claim 15 recites a projectile where the hooked ends of the propelling charge holder segments engage a flange on an aft protrusion of the projectile body where the removal of the inward radial force causes disengagement of the hooked ends from the flange. Smith discloses a forward end 22 that is coupled to an aft end 16 of a warhead 12 by a threaded engagement. Col. 3, lines 3-6. The threaded engagement does not provide an inward radial force to curved charge holder segments. As such, Smith does not teach or suggest all of the features of claim 15 and therefore claim 15 is patentable over Smith for an additional reason.

Claim Rejections – 35 U.S.C. § 103

Claims 6-11 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Brandt, U.S. Patent No. 1,879,840 ("Brandt").

Brandt discloses a bladed projectile where the rear of the projectile is equipped with blades that are moveable from a folded position to an unfolded position. Page 1, lines 60-72. The blades 12 are retained in a folded position against the body of the projectile 1 with forward clips 33. Upon issuing from the launching tube, the blades move from the position shown in Figure 3 (folded) to that of Figure 2 (unfolded). Page 2, lines 115-119. Brandt discloses a combination of both fixed and hinged blades coupled to the projectile body forward of the propelling charge holder. As depicted in Figure 5 of Brandt, each pivoting blade at the forward end of the propelling charge holder is pivoted on a shaft 19 carried by a fixed blade 20. Page 2, lines 120-129. When combined, neither Smith nor Brandt teach or suggest all of the elements of the claimed projectile.

Claim 6 has been amended to depend on claim 2. Neither Smith nor Brandt disclose a propelling charge holder that is separable during flight, as is recited in claim 2. Thus, because neither Smith nor Brandt teach or suggest all of the features of claim 2, claim 6 is patentable over both references, either alone or in combination.

Claim 7 recites a projectile that includes, *inter alia*, fins, where the fins press against the propelling charge holder segments of the propelling charge holder. Neither Smith nor Brandt teach or suggest a projectile where the fins press against propelling charge holder segments. In Smith, the fins of the projectile are mounted to the projectile body, but they do not press against propelling charge holder segments. Similarly, the blades in Brandt do not press against the propelling charge holder segments. The blades are stored against the body, but they do not press against the propelling charge holder segments. Further, the propelling charge holder segments in Smith and Brandt are not separable during flight. Thus, because Smith and Brandt do not teach or suggest all of the features of claim 7, claims 7 -11 are patentable over both references, either alone or in combination.

In addition, Claim 9 recites a projectile where one end of the propelling charge holder segments is a hooked end that engages an aft protrusion of the projectile body. The projectile disclosed by Smith does not have a hooked end that engages an aft protrusion of the projectile body. The forward end 22 of the rocket motor means 20 is coupled to the aft end of the projectile by a threaded engagement. Col. 3, lines 3-6. The hooked end of claim 9 is not the same as a threaded engagement, therefore Smith does not teach or suggest all of the features of claim 9. Brandt also does not disclose hooked ends that engage an aft protrusion of the projectile body. The hooks or forward clips 33 in Brandt retain the blades in a folded position against the projectile body. The forward clips of Brandt do not engage a protrusion of the projectile body since the blades are attached to a locking ring 32 that is slidably mounted on the tail 7. Page 3, lines 38-46. The forward clips engage the locking ring and the blades, but not an aft

protrusion of the projectile body. Thus, neither Smith nor Brandt, alone or in combination, teach or suggest all of the limitations of claim 9. Therefore, claims 9-11 are patentable over both references for another reason.

Claim 10 recites a projectile in which an aft protrusion of the projectile body includes a flange that is engaged by the hooked ends of the propelling charge holder segments. Neither Smith nor Brandt disclose a flange on an aft protrusion of the projectile body. In Smith, the rocket motor means 20 is connected to the aft end of the projectile body by a threaded engagement. Col. 3, lines 3-6. This connection is not an engagement between a flange and a hooked end because Smith does not disclose either feature. Brandt also does not disclose or suggest a flange on an aft protrusion of the projectile body. Neither Smith nor Brandt teach or suggest the features of claim 10, and therefore, claim 10 is patentable over Smith and Brandt for still another reason.

Claim 11 recites a projectile with a notch in the fins into which the hooked ends of the propelling charge holder segments partially protrude when the fins are retracted. Smith does not teach blades or fins that have notches into which hooked ends of propelling charge holder segments partially protrude. Brandt also does not disclose or suggest notches in the blades. As stated, the forward clips of Brandt do not engage the hooked ends of the propelling charge holder segments when the fins are retracted. Thus, neither Smith nor Brandt disclose or suggest all of the features of claim 11, either alone or in combination. Therefore claim 11 is patentable over both references for still another reason.

Claim 13 depends upon claim 12, which recites a projectile in which an inward radial force is applied to the propelling charge holder segments to hold them together to form the propelling charge holder. The fins supply at least part of the inward radial force when they are retracted. As stated above with respect to claim 7, neither Smith nor Brandt, either alone or in combination, disclose a projectile where the fins or blades provide an inward radial force to combine the propelling charge holder segments to form

the propelling charge holder. The propellant charge holders in Brandt and Smith are not constructed of separate propelling charge holder segments that are held together by an inward radial force. Neither Smith nor Brandt teach or suggest all of the features of claim 13, and therefore claim 13 is patentable over both references.

Newly Added Claims

New claim 23 is a generic claim that is believed to be patentable because neither Smith nor Brandt disclose a projectile where the blades of the fins have a notch into which parts of the propelling charge holder segments protrude when the fins are retracted.

New claim 24 depends from claim 2 and is believed to be patentable for at least the same reasons that claim 2 is patentable.

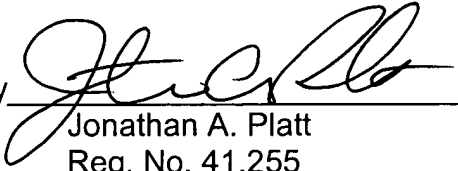
Conclusion

For at least the foregoing reasons, withdrawal of the rejections of the claims is respectfully requested, in which event this application would be in condition for allowance. Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Authorization is given to charge \$370.00 to our Deposit Account No. 18-0988 (Charge No. RAYTP0223US) for additional claims, and for a one-month extension of time. In the event that any additional fees are due in connection with the filing of this

paper, the Commissioner is authorized to charge those fees to our Deposit Account No. 18-0988 (Charge No. RAYTP0223US).

Respectfully submitted,
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